



March 25, 2008

Ms. Jill Cooper
APCD SS-B-1
4300 Cherry Creek Drive South
Denver, CO. 80222-1530

Re: Results of Radon Flux Testing Uranium Mill Primary Tailings Pond – Cotter Corporation
Canon City Milling Facility

Dear Ms. Cooper,

In accordance with the requirements of 40 CFR 61.250, Subpart W, please find enclosed the results of the radon flux measurements collected during July, 2007 in Cotter's Primary Tailings Impoundment.

These test show compliance with 40 CFR 61.252 (a) for operating uranium mill tailings piles, which limit radon emissions to 20 pCi/m²-s.

The following information is provided in accordance with 40 CFR 61.252 (a).

- 1) Name and location of mill: Cotter Corporation
Canon City Milling Facility
Canon City, Colorado 81212
- 2) Name of Mill Manager: Mr. John Hamrick
Name of Person Who Prepared Report: Mr. David L. Cooper, Telco Environmental
- 3) Site Specific Sample Results (reference page 8 of the Telco Environmental Report)
 - a) The mean radon flux measurements for each region within the Primary Impoundment indicated the following emanation rates:

Tailing Beaches:	13.3 pCi/m ² -s (based on 118,415 m ² area)
Dirt Cover:	22.5 pCi/m ² -s (based on 209,594 m ² area)
Standing Liquid Area:	0 pCi/m ² -s (based on 104,372 ms area)
 - b) Using the data presented above, the calculated mean radon flux for the total pile (cell), known as the Primary Impoundment is 14.5 pCi/m²-s.

The results of individual flux measurements are presented in Appendix C of the attached Telco Environmental Report and Figure 2 shows the approximate locations of the individual flux measurements.

All tests were conducted at or above an ambient temperature of 60° F.

No condition or unusual event occurred during the measurements that could significantly affect the reported results.

4) I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment, Sec. 18, U.S.C. 1001.

Sincerely,



Amory Quinn
President

JH:kju

Attachments

cc: Lon Hesla, USEPA
Steve Tarlton, CDPHE

**National Emission Standards for Hazardous Air Pollutants
2007 Radon Flux Measurement Program
Cañon City Milling Facility
0502 County Road 68
Cañon City, Colorado**

Primary Tailings Impoundment

Prepared for: Cotter Corporation
7800 E. Dorado Place, Suite 210
Englewood, Colorado 80111

Prepared by: Telco Environmental
P.O. Box 3987
Grand Junction, Colorado 81502

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1. INTRODUCTION

During July 2007, Tellco Environmental, LLC (Tellco) of Grand Junction, Colorado, provided support to Cotter Corporation (Cotter) regarding the required National Emission Standards for Hazardous Air Pollutants (NESHAPs) Radon Flux Measurements. These measurements, collected at Cotter's primary tailings impoundment near Cañon City, Colorado, are required to show compliance with the regulations. The regulations limit the amount of radon that can be emitted per unit area (m^2) per unit of time (s). This standard is not an average per facility, but is an average per radon source.

Tellco was contracted to provide radon collectors and lab analysis for calendar year 2007. Cotter personnel performed the on-site placement and retrieval of the canisters. This report addresses the procedures employed by Cotter and Tellco to obtain the results presented in Section 9.0 of this report.

2. SITE DESCRIPTION

The Canon City Milling Facility is located in Fremont County in the south central part of Colorado, approximately 96 miles south of Denver and approximately 36 miles west of Pueblo. The mill site lies in a topographic bowl known as the Wolf Park Basin about 3.5 miles south of Cañon City, in a semi-rural area. The site includes approximately 1520 acres, which contains an active mill currently in stand down and an active tailings (main consisting of a primary and secondary) impoundment. Cotter's active mill began operation in 1979 and has operated periodically until 2006 when it was placed in a stand-down condition. Processing circuits were cleaned out for hazard reduction and resulting solids and liquids were sent to the active tailings impoundment.

An inactive (1956-1979) alkaline leach mill has been partially dismantled, removed to a disposal site in the primary impoundment, and partially covered with soil. Alkaline tailings initially placed in a now partially reclaimed tailings disposal area (Old Pond Area), were removed to the secondary impoundment in 1981-1983. The active tailings impoundment (primary impoundment) is the subject of this flux monitoring report.

The primary impoundment had a total area of approximately 106.84 acres according to estimates of the water solution boundary in July 2007 using the July 2006 aerial photography base map and was comprised of two source regions. The primary impoundment had a total of approximately 51.79 acres with a surface covered by various types of soils of varying thickness (Covered Region), and approximately 29.26 acres of tailings beaches (Beaches Region), with the remaining 25.79 acres covered by standing liquid in low elevation areas.

3. REGULATORY REQUIREMENTS FOR THE SITE

Radon emissions from non-operational uranium mill tailings piles are regulated by the Nuclear Regulatory Commission (NRC) under generally applicable standards set by the Environmental Protection Agency (EPA) for Operating Mills. Applicable regulations are specified in 40 CFR Part 61, Subpart W with technical procedures in Appendix B. These regulations are a subset of the National Emission Standards for Hazardous Air Pollutants (NESHAPs). According to subsection 61.252 Standard, (a) radon-222 emissions to ambient air from an existing uranium mill tailings pile

shall not exceed an average of 20 picoCuries per square meter per second ($\text{pCi}/\text{m}^2\text{-s}$) for each pile or region.

4. SAMPLING METHODOLOGY

Radon emissions were measured using Large Area Activated Charcoal Canisters (LAACCs) in conformance with 40 CFR, Part 61, Appendix B, Method 115, Restrictions to Radon Flux Measurements, (EPA, 2008). These are passive gas adsorption sampling devices used to determine the flux rate of radon-222 gas from a surface. The LAACCs were constructed using a 10-inch diameter PVC end cap containing a bed of 180 grams of activated, granular charcoal. The prepared charcoal was placed in the LAACCs on a support grid on top of a $\frac{1}{2}$ inch thick layer of foam and secured with a retaining ring under $1\frac{1}{2}$ inches of foam (see Figure 1, page 10).

The sampling effort for the primary impoundment commenced on July 9, 2007 and was concluded on July 17, 2007. One hundred five collectors were placed in each region. Due to worker health and safety concerns, measurement of the wet beach areas was limited to areas readily accessible by foot near the toe of the soil cover. Each charged collector was placed directly onto the surface (open face down) and exposed to the surface for 24 hours. Radon gas adsorbed onto the charcoal and the subsequent radioactive decay of the entrained radon resulted in radioactive lead-214 and bismuth-214. These radon progeny isotopes emit characteristic gamma photons that can be detected through gamma spectroscopy. The original total activity of the adsorbed radon was calculated from these gamma ray measurements using calibration factors derived from cross-calibration of standard sources containing known total activities of radium-226 with geometry identical to the counted samples and from the principles of radioactive decay.

After 24 hours, the exposed charcoal was transferred to a sealed plastic sample container (to prevent radon loss or charcoal spillage during transport), identified and labeled, and transported via common carrier to the Telco laboratory in Grand Junction, Colorado for analysis. Upon completion of on-site activities, the field equipment was alpha- and beta-gamma scanned for possible contamination resulting from fieldwork activities. All field equipment was surveyed by Cotter Radiation Safety personnel and released for unrestricted use. Telco personnel maintained custody of the samples from receipt at the analytical laboratory through analysis.

5. FIELD OPERATIONS

5.1 Equipment Preparation

All charcoal was dried at 110°C before use in the field. Unused charcoal and recycled charcoal were treated the same. 180-gram aliquots of dried charcoal were weighed and placed in sample containers.

Proper balance operation was verified daily by checking a standard weight. The balance readout agreed with the known standard weight to within ± 0.1 percent. (Appendix A).

After acceptable balance check, empty containers were individually placed on the balance and the scale was re-zeroed with the container on the balance. Unexposed and dried charcoal was carefully added to the container until the readout registered approximately 180 grams. The lid was immediately

placed on the container and sealed with plastic tape. The balance was checked for readout drift between readings.

Sealed containers with unexposed charcoal were placed individually in the shielded counting well, with the bottom of the container centered over the detector and the background count rate was documented. Three five-minute background counts were conducted on ten percent of the containers, selected at random to represent the "batch". If the background counts were too high to achieve an acceptable lower limit of detection (LLD), the entire charcoal batch was labeled non-conforming and recycled through the heating/drying process.

5.2 Sample Locations, Identification, and Placement

Designated sample point locations were established within the region and marked with pin flags. A sample identification number (ID) was assigned to every sample point, using a sequential alphanumeric system indicating the charcoal batch and physical location within the region (e.g., A01...A110). This ID was written on an adhesive label and affixed to the top of the collector. The sample ID, date, and time of placement were recorded on the radon flux measurements data sheets for the set of one hundred measurements.

The sampling locations were spread out as evenly as feasible throughout each region. Prior to placing a collector at each sample location, the retaining ring, screen, and foam pad of each collector were removed to expose the charcoal support grid. A pre-measured charcoal charge was selected from a batch, opened and distributed evenly across the support grid. The collector was then reassembled and placed face down on the surface at each pin flagged sampling location. Care was exercised not to push the device into the soil surface. The collector rim was "sealed" to the surface using a berm of local borrow material.

Five blank collectors for each region were also collected during this sampling effort. The charcoal blanks remained inside an airtight plastic bag in the collector during the 24-hour testing period.

5.3 Sample Retrieval

At the end of the 24-hour testing period, all collectors were disassembled and each sample was individually poured through a funnel into a container. Identification numbers were transferred to the appropriate container, which was sealed and placed in a box for transport. Retrieval date and time were recorded on the same data sheet as the sample placement information. The blank samples were similarly processed.

5.4 Environmental Conditions

A rain gauge and a minimum/maximum thermometer at Cotter's on-site meteorological station were used to monitor rainfall and air temperatures during sampling in order to ensure compliance with the regulatory measurement criteria.

In accordance with 40 CFR, Part 61, Appendix B, Method 115:

- Measurements were not initiated within 24 hours of a rainfall.

- No rainfall occurred during any of the 24-hour primary impoundment measurement periods.
- The measurements presented in this report were not performed during temperatures below 35°F or on frozen ground (the minimum air temperature recorded at the site during the primary impoundment measurement periods was 68°F).

6. SAMPLE ANALYSIS

6.1 Apparatus

Apparatus used for the analysis:

- Single- or multi-channel pulse height analysis system, Ludlum Model 2200 with a Teledyne 3" x 3" sodium iodide, thallium-activated (NaI(Tl)) detector.
- Lead shielded counting well approximately 40 cm deep with 5-cm thick lead walls and a 7-cm thick base and 5 cm thick top.
- National Institute of Standards and Technology (NIST) traceable aqueous solution radium-226 absorbed onto 180 grams of activated charcoal.
- Ohaus Model C501 balance with 0.1-gram sensitivity.

6.2 Sample Inspection and Documentation

Once in the laboratory, the integrity of each charcoal container was verified by visual inspection of the plastic container. Laboratory staff documented damaged or unsealed containers and verified that the data sheet was complete.

All of the sample containers received from the primary impoundment were found to be properly sealed and in good condition upon inspection at the Tellco analytical laboratory.

The sample IDs, regions, and sampling times were complete on the radon flux measurements data sheets.

6.3 Background and Sample Counting

The gamma ray counting system was checked daily, including background and radium-226 source measurements prior to and after each counting session. Based on calibration statistics, using sources with known radium-226 content, background and source control limits were established for each Ludlum/Teledyne counting system with shielded well (Appendix A).

Gamma ray counting of exposed charcoal samples included the following steps:

- The length of count time was determined by the activity of the sample being analyzed, according to a data quality objective of a minimum of 1,000 accrued counts for any given sample.

- The sample container was centered on the NaI detector and the shielded well door was closed.
- The sample was counted over the determined period and then the mid-sample count time, date, and counts were documented on the radon flux measurements data sheet(s) and used in the calculations.
- The above steps were repeated for each exposed charcoal sample.
- Approximately 10 percent of the containers counted were selected for recounting. These containers were recounted the next day following the original count.

7. QUALITY CONTROL (QC) AND DATA VALIDATION

Charcoal flux measurement QC samples included the following intra-laboratory analytical frequency objectives:

- Recounts, 10 percent, and
- Blanks, 5 percent

All sample data were subjected to validation protocols that included assessments of sensitivity, precision, accuracy, and completeness. All method-required data quality objectives (EPA, 2008) were attained.

7.1 Sensitivity

A total of ten blanks were analyzed by measuring the radon progeny activity in samples subjected to all aspects of the measurement process, excepting exposure to the source region (see Appendix C). These blank sample measurements comprised approximately 5 percent of the field measurements. The results of the blank sample analyses measured radon flux rates that ranged from 0.06 to 0.12 pCi/m²-s, with an average of approximately 0.09 pCi/m²-s.

7.2 Precision

Twenty recount measurements, distributed throughout the sample sets, were performed by replicating analyses of individual field samples (see Appendix B). These recount measurements comprised approximately 10 percent of the total number of samples analyzed. The precision of these recount measurements, expressed as relative percent difference (RPD), ranged from less than 1 percent to 20.5 percent, with an overall average precision of approximately 2.9 percent.

7.3 Accuracy

Accuracy of field measurements was assessed daily by counting two laboratory control samples with known Ra-226 content. Accuracy of these lab control sample measurements, expressed as percent bias, ranged from -2.0 percent to +1.8 percent. The arithmetic average bias of the lab control sample measurements was approximately -0.1 percent (see Appendix A).

7.4 Completeness

All one hundred five samples from the Beaches Region were verified during this sampling program, representing 100 percent completeness for that region.

All one hundred five samples from the Covered Region were ultimately verified, representing 100 percent completeness for that region.

8. CALCULATIONS

Radon flux rates were calculated for charcoal collection samples using calibration factors derived from cross-calibration to sources with known total activity with identical geometry as the charcoal containers. A yield efficiency factor was used to calculate the total activity of the sample charcoal containers. Individual field sample result values presented were not reduced by the results of the field blank analyses.

In practice, radon flux rates were calculated by a database computer program. The algorithms utilized by the data base program were as follows:

Equation 8.1:

$$\text{pCi Rn-222/m}^2\text{sec} = \frac{N}{[T_s * A * b * 0.5^{(d/91.75)}]}$$

where: N = net sample count rate, cpm under 220-662 keV peak

T_s = sample duration, seconds

b = instrument calibration factor, cpm per pCi; values used:

0.1738, for M-01/D-21 and

0.1755, for M-02/D-20

d = decay time, elapsed hours between sample mid-time and count mid-time

A = area of the collector, m²

Equation 8.2:

$$\text{Error, } 2\sigma = 2 \times \sqrt{\frac{\frac{\text{Gross Sample, cpm}}{\text{Sample Count, t, min}} + \frac{\text{Background Sample, cpm}}{\text{Background Count, t, min}}}{\text{Net, cpm}}} \times \text{Sample Concentration}$$

Equation 8.3:

$$\text{LLD} = \frac{2.71 + (4.65)(S_b)}{[T_s * A * b * 0.5^{(d/91.75)}]}$$

where: 2.71 = constant

4.65 = confidence interval factor

S_b = standard deviation of the background count rate

T_s = sample duration, seconds

b = instrument calibration factor, cpm per pCi; values used:

0.1738, for M-01/D-21 and

0.1755, for M-02/D-20

d = decay time, elapsed hours between sample mid-time and count mid-time

A = area of the collector, m^2

9. RESULTS

9.1 Mean Radon Flux

Referencing 40 CFR, Part 61, Subpart W, Appendix B, Method 115 - Monitoring for Radon-222 Emissions, Subsection 2.1.7 - Calculations, "the mean radon flux for each region of the pile and for the total pile shall be calculated and reported as follows:

- (a) The individual radon flux calculations shall be made as provided in Appendix A EPA 86(1). The mean radon flux for each region of the pile shall be calculated by summing all individual flux measurements for the region and dividing by the total number of flux measurements for the region.
- (b) The mean radon flux for the total uranium mill tailings pile shall be calculated as follows:

$$J_s = \frac{J_1A_1 + \dots + J_2A_2 + \dots + J_iA_i}{A_t}$$

Where: J_s = Mean flux for the total pile ($\text{pCi}/\text{m}^2\text{-s}$)

J_i = Mean flux measured in region i ($\text{pCi}/\text{m}^2\text{-s}$)

A_i = Area of region i (m^2)

A_t = Total area of the pile (m^2)

2.1.8 Reporting. The results of individual flux measurements, the approximate locations on the pile, and the mean radon flux for each region and the mean radon flux for the total stack [pile] shall be included in the emission test report. Any condition or unusual event that occurred during the measurements that could significantly affect the results should be reported."

9.2 Site Results

Site Specific Sample Results (reference Figure 2 and Appendix C)

(a) The mean radon flux rate for each region within the Primary Impoundment is as follows:

Tailings Beaches = 13.3 pCi/m²-s (based on 118,415 m² area)

Dirt Cover = 22.5 pCi/m²-s (based on 209,594 m² area)

Standing Liquid Areas = 0 pCi/m²-s (based on 104,372 m² area)

(b) Using the data presented above, the calculated mean radon flux rate for the total pile (cell), known as the Primary Impoundment, is 14.5 pCi/m²-s, is as follows:

$$\frac{(13.3)(118,415) + (22.5)(209,594) + (0)(104,372)}{432,381} = 14.5 \text{ pCi/m}^2\text{-s}$$

As shown above, the arithmetic mean radon flux for the Primary Impoundment at Cotter Corporation's Cañon City Milling facility is below the NRC and EPA standard of 20 pCi/m²-s. No condition or unusual event occurred during the measurements that could significantly affect the reported results. Appendix C is a summary of individual measurement results, including blank sample analysis. Sample locations are depicted on Figure 2, which is included in Appendix D. The map was produced by Cotter.

References

- U. S. Environmental Protection Agency, *Radon Flux Measurements on Gardinier and Royster Phosphogypsum Piles Near Tampa and Mulberry, Florida*, EPA 520/5-85-029, NTIS #PB86-161874, January 1986.
- U. S. Environmental Protection Agency, *Title 40, Code of Federal Regulations*, February 2008.
- U. S. Nuclear Regulatory Commission, *Radiological Effluent and Environmental Monitoring at Uranium Mills*, Regulatory Guide 4.14, April 1980.
- U. S. Nuclear Regulatory Commission, *Title 10, Code of Federal Regulations*, Part 40, Appendix A, January 2008.

Figure 1
Large Area Activated Charcoal Canisters Diagram

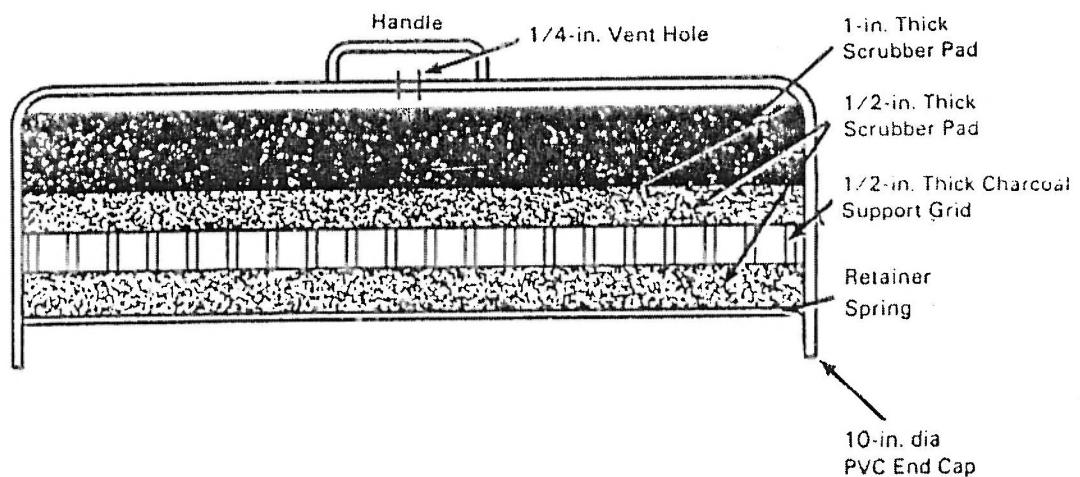


FIGURE 1 Large-Area Radon Collector

Appendix A

Charcoal Canister Analyses Support Documents

BALANCE OPERATION DAILY CHECK

Balance Model: Ohaus Port-o-gram S.N. 12307

Standard Weight (g): 200.0

COTTER CORPORATION
CANON CITY, COLORADO
2007 NESHAPS RADON FLUX MEASUREMENTS
PRIMARY IMPOUNDMENT

SYSTEM I.D.	DATE	Bkg Counts (1 min. each)			Source Counts (1 min. each)			AVG NET cpm	YIELD cpm/pcCi	FOUND pcCi	SOURCE ID	KNOWN PCi	% BIAS
		#1	#2	#3	#1	#2	#3						
M-01/D-21	7/13/2007	144	138	127	10483	10644	10440	10386	0.1738	59758	GS-04	59300	0.8%
M-01/D-21	7/13/2007	139	142	135	10535	10510	10639	10423	0.1738	59969	GS-04	59300	1.1%
M-01/D-21	7/14/2007	149	127	138	10494	10237	10352	10223	0.1738	58820	GS-04	59300	-0.8%
M-01/D-21	7/14/2007	140	138	155	10360	10300	10260	10162	0.1738	58471	GS-04	59300	-1.4%
M-01/D-21	7/21/2007	134	133	133	10276	10222	10262	10120	0.1738	58228	GS-04	59300	-1.8%
M-01/D-21	7/21/2007	138	151	148	10343	10237	10385	10176	0.1738	58550	GS-04	59300	-1.3%
M-01/D-21	7/22/2007	163	123	130	10206	10368	10309	10156	0.1738	58433	GS-04	59300	-1.5%
M-01/D-21	7/22/2007	133	134	135	10306	10155	10252	10104	0.1738	58134	GS-04	59300	-2.0%
M-01/D-21	7/13/2007	144	138	127	10479	10525	10506	10367	0.1738	59649	GS-05	59300	0.6%
M-01/D-21	7/13/2007	139	142	135	10432	10335	10375	10242	0.1738	58930	GS-05	59300	-0.6%
M-01/D-21	7/14/2007	149	127	138	10505	10469	10403	10321	0.1738	59384	GS-05	59300	0.1%
M-01/D-21	7/14/2007	140	138	155	10552	10597	10448	10388	0.1738	59770	GS-05	59300	0.8%
M-01/D-21	7/21/2007	134	133	133	10507	10729	10395	10410	0.1738	59898	GS-05	59300	1.0%
M-01/D-21	7/21/2007	138	151	148	10475	10277	10497	10271	0.1738	59095	GS-05	59300	-0.3%
M-01/D-21	7/22/2007	163	123	130	10613	10589	10336	10374	0.1738	59689	GS-05	59300	0.7%
M-01/D-21	7/22/2007	133	134	135	10614	10540	10731	10494	0.1738	60382	GS-05	59300	1.8%
M-02/D-20	7/13/2007	125	115	123	10500	10610	10794	10514	0.1755	59907	GS-04	59300	1.0%
M-02/D-20	7/13/2007	145	157	144	10616	10421	10535	10375	0.1755	59119	GS-04	59300	-0.3%
M-02/D-20	7/14/2007	128	149	132	10423	10567	10507	10363	0.1755	59047	GS-04	59300	-0.4%
M-02/D-20	7/14/2007	135	136	133	10210	10424	10461	10230	0.1755	58292	GS-04	59300	-1.7%
M-02/D-20	7/21/2007	131	108	148	10514	10458	10511	10365	0.1755	59062	GS-04	59300	-0.4%
M-02/D-20	7/21/2007	128	129	137	10393	10247	10423	10223	0.1755	58251	GS-04	59300	-1.8%
M-02/D-20	7/22/2007	133	128	148	10314	10405	10472	10261	0.1755	58465	GS-04	59300	-1.4%
M-02/D-20	7/22/2007	114	133	129	10472	10344	10252	10231	0.1755	58294	GS-04	59300	-1.7%
M-02/D-20	7/13/2007	125	115	123	10655	10665	10565	10507	0.1755	59871	GS-05	59300	1.0%
M-02/D-20	7/13/2007	145	157	144	10432	10459	10541	10329	0.1755	58853	GS-05	59300	-0.8%
M-02/D-20	7/14/2007	128	149	132	10698	10674	10458	10474	0.1755	59679	GS-05	59300	0.6%
M-02/D-20	7/14/2007	135	136	133	10658	10657	10593	10501	0.1755	59837	GS-05	59300	0.9%
M-02/D-20	7/21/2007	131	108	148	10520	10731	10318	10394	0.1755	59225	GS-05	59300	-0.1%
M-02/D-20	7/21/2007	128	129	137	10451	10641	10735	10478	0.1755	59702	GS-05	59300	0.7%
M-02/D-20	7/22/2007	133	128	148	10550	10766	10759	10555	0.1755	60144	GS-05	59300	1.4%
M-02/D-20	7/22/2007	114	133	129	10803	10577	10664	10556	0.1755	60148	GS-05	59300	1.4%

AVERAGE PERCENT BIAS FOR ALL ANALYTICAL SESSIONS SHOWN: -0.1%

CHARCOAL CANISTER ANALYSIS SYSTEM

SITE LOCATION: Cañon City, CO

CLIENT: Cotter Corporation

Calibration Check Log

System ID: M-01/D-21 Calibration Date: 6/07/07 Due Date: 6/07/08

Scaler S/N: 51572 High Voltage: 1100 Window: 4.42 Thrshld: 2.20

Detector S/N: 041533 Source ID/SN: Ra²²⁶/G5-04 Source Activity: 59.3 K pCi

Blank Canister Bkgd. Range, cpm: $2\sigma = 100$ to 171 $3\sigma = 82$ to 189

Gross Source Range, cpm: $2\sigma = 10122$ to 10797 $3\sigma = 9953$ to 10966

Technician: DL Coop

All counts times are one minute.

Y/N: Y = average background and source cpm falls within the control limits.

N = average background and source cpm does not fall within the control limits.

The acceptable ranges were determined from prior background and source check data.

CHARCOAL CANISTER ANALYSIS SYSTEM

SITE LOCATION: Canon City, CO
CLIENT: Cotter Corporation

Calibration Check Log

System ID: M-01/D-21 Calibration Date: 6/07/07 Due Date: 6/07/08

Scaler S/N: 51572 High Voltage: 1100 Window: 4.42 Thrshld: 2.20

Detector S/N: 041533 Source ID/SN: Ra²²⁶/GS-05 Source Activity: 59.3 KpCi

Blank Canister Bkgd. Range, cpm: $2\sigma = 100$ to 171 $3\sigma = 82$ to 189

$$\text{Gross Source Range, cpm: } 2\sigma = \underline{10074} \text{ to } \underline{10767} \quad 3\sigma = \underline{9900} \text{ to } \underline{10940}$$

Technician: DL Cooper

All counts times are one minute.

Y/N: Y = average background and source cpm falls within the control limits.

N = average background and source cpm does not fall within the control limits.

The acceptable ranges were determined from prior background and source check data.

CHARCOAL CANISTER ANALYSIS SYSTEM

SITE LOCATION: Cañon City, CO

CLIENT: Cother Corporation

Calibration Check Log

System ID: M-02/D-20 Calibration Date: 6/07/07 Due Date: 6/07/08

Scaler S/N: 51563 High Voltage: 825 Window: 4.42 Thrshld: 2.20

Detector S/N: 041532 Source ID/SN: Ru²²⁴ / GS-04 Source Activity: 59.3 k pCi

Blank Canister Bkgd. Range, cpm: $2\sigma = 90$ to 173 $3\sigma = 69$ to 194

Gross Source Range, cpm: $2\sigma = \underline{10170}$ to $\underline{10937}$ $3\sigma = \underline{9978}$ to $\underline{11129}$

Technician: DL Coop

All counts times are one minute.

Y/N: Y = average background and source cpm falls within the control limits.

N = average background and source cpm does not fall within the control limits.

The acceptable ranges were determined from prior background and source check data.

CHARCOAL CANISTER ANALYSIS SYSTEM

SITE LOCATION: Cañon City, CO
CLIENT: Cotter Corporation

Calibration Check Log

System ID: M-02 / D-20 Calibration Date: 6/07/07 Due Date: 6/07/08

Scaler S/N: 51563 High Voltage: 825 Window: 4.42 Thrshld: 2.20

Detector S/N: 041532 Source ID/SN: Rg²²⁶ / GS-05 Source Activity: 59.3 K pCi

Blank Canister Bkgd. Range, cpm: $2\sigma = 90$ to 173 $3\sigma = 69$ to 194

$$\text{Gross Source Range, cpm: } 2\sigma = \underline{10183} \text{ to } \underline{10864} \quad 3\sigma = \underline{10012} \text{ to } \underline{11036}$$

Technician: DL Cooper

All counts times are one minute.

Y/N: Y = average background and source cpm falls within the control limits.

N = average background and source cpm does not fall within the control limits.

The acceptable ranges were determined from prior background and source check data.

Appendix B

Recount Data Analyses

CLIENT: COTTER CORP. PROJECT: RADON FLUX MEASUREMENTS, CANON CITY, CO

PROJECT NO.: 07005.00

PILE: PRIMARY SURFACE: SOIL AIR TEMP MIN: 69°F WEATHER: NO RAIN
 AREA: COVER DEPLOYED: 7 16 7 RETRIEVED: 7 17 7 CHARCOAL BKG: 180.0 g.
 FIELD TECHNICIAN: P. Usnick, M. Currey, M. Villagrana COUNTED BY: DLC TARE WEIGHT: 29.2 g.
 COUNTING SYSTEM I.D.: M01/D21, M02/D20 CAL. DUE: 6/07/08

RECOUNT CANISTER ANALYSIS:

GRID LOCATION	SAMPLE I. D.	DEPLOY			RETRIV			ANALYSIS			MILD-TIME			CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON PCi/m² s			LIID PCi/m² s			PRECISION % RPD		
		HR	MIN	HR	MIN	MO	DA	YR	HR	MIN	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s	PCi/m² s		
DC10 RECOUNT	C10	9	4	9	51	7	21	7	9	12	1	2625	218.1	6.8	0.7	0.05	0.7	0.05	0.06	0.06	0.06	0.06	0.06	2.9%	
DC20 RECOUNT	C20	9	27	9	59	7	22	7	9	33	6	1133	221.7	0.11	0.0	0.05	0.1	0.06	0.1	0.06	0.06	0.06	0.06	9.5%	
DC30 RECOUNT	C30	9	48	10	9	7	21	7	9	53	1	1856	223.6	4.8	0.5	0.05	0.5	0.05	0.5	0.06	0.06	0.06	0.06	2.1%	
DC40 RECOUNT	C40	10	6	10	14	7	21	7	10	9	1	8406	218.9	23.3	2.3	0.05	2.3	0.05	2.3	0.06	0.06	0.06	0.06	0.4%	
DC50 RECOUNT	C50	10	23	11	55	7	21	7	10	19	1	8117	217.3	21.1	2.1	0.05	2.1	0.05	2.1	0.06	0.06	0.06	0.06	1.9%	
DC60 RECOUNT	C60	10	41	12	2	7	21	7	10	26	1	3894	220.6	10.0	1.0	0.05	1.0	0.05	1.0	0.06	0.06	0.06	0.06	1.0%	
DC70 RECOUNT	C70	12	32	13	21	7	21	7	10	33	1	5693	214.5	14.9	1.5	0.05	1.5	0.05	1.5	0.06	0.06	0.06	0.06	1.0%	
DC80 RECOUNT	C80	12	49	13	26	7	22	7	10	41	1	3002	213.6	7.7	0.8	0.05	0.7	0.06	0.7	0.06	0.06	0.06	0.06	4.0%	
DC90 RECOUNT	C90	13	6	13	37	7	21	7	10	48	1	5316	219.3	14.1	1.4	0.05	1.4	0.05	1.4	0.06	0.06	0.06	0.06	3.6%	
DC100 RECOUNT	C100	13	21	13	40	7	22	7	8	7	1	9041	210.9	24.6	2.5	0.05	2.5	0.05	2.5	0.06	0.06	0.06	0.06	0.8%	
AVERAGE PERCENT PRECISION FOR THE PRIMARY COVERED REGION:																								2.6%	

CLIENT: COTTER CORP. PROJECT: RADON FLUX MEASUREMENTS, CANON CITY, CO

PROJECT NO.: 07005.00

PILE: PRIMARY SURFACE: TAILINGS AIR TEMP MIN: 71°F
 AREA, BEACH DEPLOYED: 7 9 7 RETRIEVED: 7 10 7 CHARCOAL BKG:
 FIELD TECHNICIANS:P.Usnick, M.Currey, M.Villagrana COUNTED BY: DLC DATA ENTRY BY: DLC
 COUNTING SYSTEM ID.: M01/D21, M02/D20 CAL. DUE: 6/07/08

RECOUNT CANISTER ANALYSIS:

GRID	SAMPLE	DEPLOY	RETRIV	ANALYSIS			MID-TIME (MIN)	CNT	GROSS COUNTS	GROSS WT IN	RADON pCi/m ² s	± pCi/m ² s	LLD	PRECISION % RPD	
				I.	D.	HR	MIN								
TB10	A10	8	35	9	36	7	13	7	14	24	1	2999	227.4	6.7	0.04
RECOUNT	A10	8	35	9	36	7	14	7	10	20	1	2470	227.4	6.4	0.05
TB20	A20	9	0	9	44	7	13	7	14	45	3	1271	224.7	0.64	0.04
RECOUNT	A20	9	0	9	44	7	14	7	10	22	3	1154	224.7	0.64	0.05
TB30	A30	9	18	9	52	7	13	7	15	0	1	3070	225.3	7.0	0.04
RECOUNT	A30	9	18	9	52	7	14	7	10	24	1	2688	225.3	7.1	0.05
TB40	A40	9	32	9	58	7	13	7	15	9	2	1006	229.6	0.84	0.04
RECOUNT	A40	9	32	9	58	7	14	7	10	26	3	1392	229.6	0.86	0.05
TB50	A50	9	55	10	7	7	13	7	15	23	1	53827	228.9	131.1	0.05
RECOUNT	A50	9	55	10	7	7	14	7	10	29	1	46603	228.9	132.3	0.05
TB60	A60	10	6	12	31	7	13	7	15	34	3	1040	227.0	0.43	0.04
RECOUNT	A60	10	6	12	31	7	14	7	10	33	4	1170	227.0	0.35	0.05
TB70	A70	10	26	12	39	7	13	7	15	47	1	4600	230.1	9.9	0.04
RECOUNT	A70	10	26	12	39	7	14	7	10	35	1	3953	230.1	9.9	0.05
TB80	A80	10	44	12	46	7	13	7	15	57	2	1212	229.3	1.0	0.10
RECOUNT	A80	10	44	12	46	7	14	7	10	37	2	1080	229.3	1.0	0.05
TB90	A90	12	33	12	51	7	13	7	16	7	1	5421	224.3	12.6	0.04
RECOUNT	A90	12	33	12	51	7	14	7	10	38	1	4615	224.3	12.4	0.05
TB100	A100	12	51	13	1	7	13	7	16	31	2	1252	222.3	1.1	0.11
RECOUNT	A100	12	51	13	1	7	14	7	10	39	2	1096	222.3	1.1	0.11

AVERAGE PERCENT PRECISION FOR THE PRIMARY BEACHES REGION:

3.1%

Appendix C

Radon Flux Sample Laboratory Data (including Blanks)

CLIENT: COTTER CORP.

PROJECT: RADON FLUX MEASUREMENTS, CANON CITY, CO

PILE: PRIMARY BATCH: C SURFACE: SOIL
 AREA: COVER DEPLOYED: 7 16 7 RETRIEVED: 7 17 7 AIR TEMP MIN: 69°F
 FIELD TECHNICIAN: S.P. Usnick, M.Currey, M.Villagrana COUNTED BY: DLC CHARCOAL BKG:
 COUNTING SYSTEM ID.: M01/DD21, M02/DD20 CAL. DUE: 6/07/08 DATA ENTRY BY: DLC TARE WEIGHT:

WEATHER: NO RAIN

150 cpm

g.

180.0 Wt. Out:

29.2 g.

TARE WEIGHT:

180.0 Wt. Out:

29.2 g.

PROJECT NO.: 07005.00

GRID LOCATION	SAMPLE I.	D.	DEPLOY HR	MIN	RETRIV HR	MIN	ANALYSIS MO	DA	YR	MID-TIME HR	MIN	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m² s	GROSS ± pCi/m² s	RADON pCi/m² s	LLD	COMMENTS :
DC01	C01	8	46	9	47	7	21	7	9	0	1	3723	218.1	9.8	0.98	0.05			
DC02	C02	8	48	9	47	7	21	7	9	0	1	2943	217.5	7.6	0.76	0.05			
DC03	C03	8	49	9	48	7	21	7	9	1	1	2772	219.1	7.2	0.72	0.05			
DC04	C04	8	51	9	48	7	21	7	9	1	1	4981	222.7	13.1	1.31	0.05			
DC05	C05	8	52	9	47	7	21	7	9	4	2	1577	219.8	1.8	0.18	0.05			
DC06	C06	8	54	9	47	7	21	7	9	5	3	1188	216.3	0.7	0.07	0.05			
DC07	C07	8	57	9	47	7	21	7	9	8	3	1001	218.9	0.5	0.07	0.05			
DC08	C08	8	58	9	48	7	21	7	9	9	4	1225	216.1	0.4	0.06	0.05			
DC09	C09	9	2	9	50	7	21	7	9	12	1	2226	220.2	5.7	0.57	0.05			
DC10	C10	9	4	9	51	7	21	7	9	12	1	2625	218.1	6.8	0.68	0.05			
DC11	C11	9	6	9	51	7	21	7	9	13	1	3772	217.3	10.0	1.00	0.05			
DC12	C12	9	8	9	52	7	21	7	9	13	1	1128	220.0	2.7	0.27	0.05			
DC13	C13	9	10	9	52	7	21	7	9	15	2	1182	219.3	1.2	0.12	0.05			
DC14	C14	9	12	9	52	7	21	7	9	16	3	1084	218.1	0.6	0.07	0.05			
DC15	C15	9	15	9	55	7	21	7	9	19	1	1033	217.1	2.5	0.25	0.05			
DC16	C16	9	17	9	56	7	21	7	9	21	5	1096	224.1	0.2	0.05	0.05			
DC17	C17	9	20	9	57	7	21	7	9	25	1	1403	220.9	3.5	0.35	0.05			
DC18	C18	9	21	9	58	7	21	7	9	27	4	1097	221.0	0.3	0.05	0.05			
DC19	C19	9	24	9	59	7	21	7	9	31	3	1178	217.7	0.7	0.07	0.05			
DC20	C20	9	27	9	59	7	21	7	9	33	6	1133	221.7	0.1	0.04	0.05			
DC21	C21	9	30	10	0	7	21	7	9	38	2	1838	219.9	2.2	0.22	0.05			
DC22	C22	9	33	10	2	7	21	7	9	39	3	1424	217.6	0.9	0.09	0.05			
DC23	C23	9	35	10	2	7	21	7	9	43	2	1306	218.6	1.4	0.14	0.05			
DC24	C24	9	37	10	3	7	21	7	9	44	4	1008	216.4	0.3	0.05	0.05			
DC25	C25	9	39	10	4	7	21	7	9	48	2	1798	221.5	2.1	0.21	0.05			
DC26	C26	9	41	10	5	7	21	7	9	48	1	4325	220.4	11.6	1.16	0.05			
DC27	C27	9	43	10	7	7	21	7	9	50	3	1425	218.6	0.9	0.09	0.05			
DC28	C28	9	45	10	6	7	21	7	9	49	1	2406	225.9	6.3	0.63	0.05			
DC29	C29	9	47	10	6	7	21	7	9	53	1	6506	228.5	18.0	1.80	0.05			
DC30	C30	9	48	10	9	7	21	7	9	53	1	1856	223.6	4.8	0.48	0.05			
DC31	C31	9	50	10	8	7	21	7	9	54	1	3651	228.4	9.9	0.99	0.05			
DC32	C32	9	52	10	7	7	21	7	9	56	3	1119	220.3	0.6	0.07	0.05			
DC33	C33	9	54	10	10	7	21	7	10	0	4	1113	223.3	0.4	0.06	0.05			
DC34	C34	9	55	10	10	7	21	7	9	58	1	1198	224.0	2.9	0.29	0.05			
DC35	C35	9	57	10	11	7	21	7	10	3	1	6672	221.9	18.5	1.85	0.05			
DC36	C36	9	59	10	11	7	21	7	10	3	1	2182	223.3	5.7	0.57	0.05			

CLIENT: COTTER CORP.

PROJECT NO.: 07005.00

RADON FLUX MEASUREMENTS, CANON CITY, CO

PILE: PRIMARY BATCH: C SURFACE: SOIL AIR TEMP MIN: 69°F
 AREA: COVER DEPLOYED: 7 16 7 RETRIEVED: 7 17 7 CHARCOAL BKG: 150 cpm WEATHER: NO RAIN
 FIELD TECHNICIAN: S.P.Ushnick, M.Currey, M.Villagrana COUNTED BY: DLC TARE WEIGHT: 180.0 g.
 COUNTING SYSTEM ID.: M01/D21, M02/D20 CAL. DUE: 6/07/08 TWT. OUT: 9. g.

AIR TEMP MAX: 70°F

WEATHER: NO RAIN

CHARCOAL BKG: 150 cpm

TARE WEIGHT: 180.0 g.

Wt. Out: 180.0 g.

TARE WEIGHT: 29.2 g.

GRID LOCATION	SAMPLE I.	D.	DEPLOY HR	MIN	RETRIV HR	MIN	ANALYSIS MO	DA	YR	MID-TIME HR	MIN	CNT (MIN)	GROSS COUNTS	GROSS WT IN	RADON pCi/m² s	\pm pCi/m² s	TLD	COMMENTS:
DC37	C3.7	10	0	10	12	7	21	7	10	4	1	4123	220.7	11.3	1.13	0.05		
DC38	C3.8	10	2	10	13	7	21	7	10	6	4	1104	218.0	0.4	0.06	0.05		
DC39	C3.9	10	4	10	13	7	21	7	10	10	3	1034	217.5	0.6	0.07	0.05		
DC40	C4.0	10	6	10	14	7	21	7	10	9	1	8406	218.9	23.3	2.33	0.05		
DC41	C4.1	10	8	10	15	7	21	7	10	11	1	46863	214.1	133.1	13.31	0.05		
DC42	C4.2	10	10	10	15	7	21	7	10	11	1	11894	223.0	33.2	3.32	0.05		
DC43	C4.3	10	12	10	16	7	21	7	10	12	1	3695	220.3	10.1	1.01	0.05		
DC44	C4.4	10	13	10	16	7	21	7	10	14	4	1109	222.2	0.4	0.06	0.05		
DC45	C4.5	10	15	10	17	7	21	7	10	17	1	2618	221.2	7.1	0.71	0.05		
DC46	C4.6	10	17	10	18	7	21	7	10	17	1	39153	222.8	110.5	11.05	0.05		
DC47	C4.7	10	19	10	19	7	21	7	10	18	1	4014	214.2	11.1	1.11	0.05		
DC48	C4.8	10	20	11	53	7	21	7	10	18	1	8752	217.0	22.8	2.28	0.05		
DC49	C4.9	10	22	11	55	7	21	7	10	19	1	5725	221.1	14.9	1.49	0.05		
DC50	C5.0	10	23	11	55	7	21	7	10	19	1	8117	217.3	21.1	2.11	0.05		
DC51	C5.1	10	25	11	55	7	21	7	10	21	1	13558	211.9	35.9	3.59	0.05		
DC52	C5.2	10	26	11	56	7	21	7	10	21	1	33309	220.4	87.9	8.79	0.05		
DC53	C5.3	10	28	11	59	7	21	7	10	22	1	12858	217.6	34.0	3.40	0.05		
DC54	C5.4	10	30	11	59	7	21	7	10	22	1	48140	219.9	127.3	12.73	0.05		
DC55	C5.5	10	31	12	0	7	21	7	10	23	1	23428	224.1	62.3	6.23	0.05		
DC56	C5.6	10	33	11	54	7	21	7	10	23	1	33968	221.5	90.2	9.02	0.05		
DC57	C5.7	10	35	11	57	7	21	7	10	25	1	1163	219.5	2.7	0.27	0.05		
DC58	C5.8	10	37	11	57	7	21	7	10	25	1	4700	219.4	12.1	1.21	0.05		
DC59	C5.9	10	39	12	1	7	21	7	10	26	1	6610	219.9	17.4	1.74	0.05		
DC60	C6.0	10	41	12	2	7	21	7	10	26	1	3894	220.6	10.0	1.00	0.05		
DC61	C6.1	10	42	12	2	7	21	7	10	28	1	2076	223.1	5.2	0.52	0.05		
DC62	C6.2	10	44	12	3	7	21	7	10	28	1	25023	220.0	66.4	6.64	0.05		
DC63	C6.3	10	46	12	3	7	21	7	10	29	1	1573	220.5	3.8	0.38	0.05		
DC64	C6.4	10	48	12	4	7	21	7	10	29	1	2611	223.5	6.6	0.66	0.05		
DC65	C6.5	12	23	13	19	7	21	7	10	31	1	3423	214.7	8.9	0.89	0.05		
DC66	C6.6	12	25	13	19	7	21	7	10	31	1	23590	212.4	62.9	6.29	0.05		
DC67	C6.7	12	27	13	20	7	21	7	10	32	1	2338	219.6	5.9	0.59	0.05		
DC68	C6.8	12	29	13	20	7	21	7	10	32	1	2293	216.7	5.8	0.58	0.05		
DC69	C6.9	12	30	13	21	7	21	7	10	33	1	1128	212.1	2.7	0.27	0.05		
DC70	C7.0	12	32	13	21	7	21	7	10	33	1	5693	214.5	14.9	1.49	0.05		
DC71	C7.1	12	33	13	22	7	21	7	10	35	1	1002	212.2	2.3	0.23	0.05		
DC72	C7.2	12	34	13	22	7	21	7	10	35	1	6330	212.9	16.7	1.67	0.05		

CLIENT: COTTER CORP.

PROJECT: RADON FLUX MEASUREMENTS, CANON CITY, CO

PROJECT NO.: 07005.00

PILE: PRIMARY BATCH: C SURFACE: SOIL AIR TEMP MIN: 69°F
 AREA: COVER DEPLOYED: 7 16 7 RETRIEVED: 7 17 7 CHARCOAL BKG: 150 cpm WEATHER: NO RAIN
 FIELD TECHNICIAN:S.P.Usnick, M.Currey, M.Villagrana COUNTED BY: DLC DATA ENTRY BY: DLC
 COUNTING SYSTEM ID.: M01/D21, M02/D20 CAL. DUE: 6/07/08

WEATHER: NO RAIN
 TARE WEIGHT: 29.2 g.
 Wt. Out: 180.0 g.

GRID LOCATION	SAMPLE I.	D.	DEPLOY HR	MIN	HR	MIN	MO	DA	YR	ANALYSIS	MID-TIME HR	MIN	(MIN)	GROSS COUNTS	GROSS WT IN	GROSS pCi/m ² s	RADON ± pCi/m ² s	LID	COMMENTS:
														COUNTS	WT IN	pCi/m ² s	pCi/m ² s	TARE WEIGHT: 29.2 g.	
DC73	C73	12	36	13	23	7	21	7	10	36	1	6002	221.5	15.9	1.59	0.05			
DC74	C74	12	38	13	25	7	21	7	10	36	1	4068	213.4	10.6	1.06	0.05			
DC75	C75	12	39	13	25	7	21	7	10	38	1	4753	213.5	12.5	1.25	0.05			
DC76	C76	12	42	13	25	7	21	7	10	38	1	14061	213.8	37.6	3.76	0.05			
DC77	C77	12	43	13	26	7	21	7	10	39	1	6386	215.3	17.0	1.70	0.05			
DC78	C78	12	45	13	30	7	21	7	10	39	1	3872	214.7	10.0	1.00	0.05			
DC79	C79	12	47	13	25	7	21	7	10	41	1	6270	215.1	16.8	1.68	0.05			
DC80	C80	12	49	13	26	7	21	7	10	41	1	3002	213.6	7.7	0.77	0.05			
DC81	C81	12	52	13	31	7	21	7	10	42	1	15894	213.7	43.1	4.31	0.05			
DC82	C82	12	53	13	31	7	21	7	10	42	1	4766	211.9	12.5	1.25	0.05			
DC83	C83	12	54	13	31	7	21	7	10	44	1	8588	210.6	23.1	2.31	0.05			
DC84	C84	12	57	13	32	7	21	7	10	44	1	4734	211.8	12.4	1.24	0.05			
DC85	C85	12	58	13	32	7	21	7	10	45	1	9614	217.6	26.0	2.60	0.05			
DC86	C86	13	0	13	32	7	21	7	10	45	1	13226	209.0	35.6	3.56	0.05			
DC87	C87	13	1	13	33	7	21	7	10	46	1	6738	218.3	18.1	1.81	0.05			
DC88	C88	13	3	13	34	7	21	7	10	46	1	9982	218.2	26.8	2.68	0.05			
DC89	C89	13	5	13	34	7	21	7	10	48	1	3722	217.1	9.8	0.98	0.05			
DC90	C90	13	6	13	37	7	21	7	10	48	1	5316	219.3	14.1	1.41	0.05			
DC91	C91	13	9	13	36	7	21	7	10	49	1	5844	216.7	15.7	1.57	0.05			
DC92	C92	13	12	13	36	7	21	7	10	49	1	4444	213.2	11.7	1.17	0.05			
DC93	C93	13	11	13	35	7	21	7	10	51	1	103644	211.1	285.9	28.59	0.05			
DC94	C94	13	14	13	38	7	21	7	10	51	1	3897	217.9	10.3	1.03	0.05			
DC95	C95	13	15	13	38	7	21	7	10	52	1	8884	212.8	23.9	2.39	0.05			
DC96	C96	13	16	13	38	7	21	7	10	52	1	1889	213.8	4.8	0.48	0.05			
DC97	C97	13	18	13	39	7	21	7	10	54	1	10800	216.1	29.2	2.92	0.05			
DC98	C98	13	19	13	39	7	21	7	10	54	1	16747	218.7	46.0	4.60	0.05			
DC99	C99	13	20	13	40	7	21	7	10	55	1	4511	212.0	12.0	1.20	0.05			
DC100	C100	13	21	13	40	7	21	7	10	55	1	9041	210.9	24.6	2.46	0.05			
DC101	C101	13	22	13	41	7	21	7	10	57	1	13420	212.1	36.4	3.64	0.05			
DC102	C102	13	23	13	43	7	21	7	10	57	1	8892	216.4	24.2	2.42	0.05			
DC103	C103	13	25	13	41	7	21	7	10	58	1	5911	213.6	15.8	1.58	0.05			
DC104	C104	13	26	13	42	7	21	7	10	58	1	21130	213.9	58.2	5.82	0.05			
DC105	C105	13	27	13	42	7	21	7	11	1	1	63871	213.6	175.4	17.54	0.05			

AVERAGE RADON FLUX RATE FOR THE PRIMARY COVERED REGION:

22.5 pCi/m²s

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CLIENT: COTTER CORP. PROJECT: RADON FLUX MEASUREMENTS, CANON CITY, CO

PROJECT NO.: 07005.00

PILE: PRIMARY BATCH: C SURFACE: SOIL AIR TEMP MIN: 69°F
AREA: COVER DEPLOYED: 7 16 7 RETRIEVED: 7 17 7 CHARCOAL BKG:
FIELD TECHNICIAN: P. Usnick, M.Currey, M.Villagraña COUNTED BY: DLC DATA ENTRY BY: DLC
COUNTING SYSTEM ID.: M01/D21, M02/D20 CAL. DUE: 6/07/08

BLANK CANISTER ANALYSIS:

GRID	SAMPLE	DEPLOY	RETRIV	ANALYSIS	MID-TIME	CNT	GROSS	GROSS	RADON	RADON	±	LTD	COMMENTS:			
LOCATION	I.	D.	HR	MIN	HR	MIN	MO	DA	HR	MIN	(MIN)	COUNTS	WT IN	pCi/m ² s	pCi/m ² s	pCi/m ² s
C BLANK 1	C106	14	22	14	22	7	21	7	11	6	10	1734	211.2	0.06	0.04	0.05
C BLANK 2	C107	14	22	14	22	7	21	7	11	17	10	1801	211.0	0.08	0.04	0.05
C BLANK 3	C108	14	22	14	22	7	21	7	11	17	10	1823	209.7	0.09	0.04	0.05
C BLANK 4	C109	14	22	14	22	7	21	7	11	28	10	1890	211.0	0.11	0.04	0.05
C BLANK 5	C110	14	22	14	22	7	21	7	11	28	10	1947	209.0	0.12	0.04	0.05
AVERAGE BLANK CANISTER ANALYSIS FOR THE PRIMARY COVERED REGION:														0.09	pCi/m ² s	

WEATHER: NO RAIN
WEIGHT: 29.2 g.
TARE WEIGHT: 180.0 g.

CLIENT: COTTER CORP.

PROJECT:

RADON FLUX MEASUREMENTS, CANON CITY, CO

PILE: PRIMARY BATCH: A SURFACE: TAILINGS
 AREA: BEACH DEPLOYED: 7 9 7 RETRIEVED: 7 10 7 AIR TEMP MIN: 68°F
 FIELD TECHNICIANS:P.Usnick, M.Currey, M.Villagra
 COUNTING SYSTEM I.D.: M01/D21, M02/D20 COUNTED BY: DLC
 CAL. DUE: 6/07/08

WEATHER: NO RAIN
 155 cpm
 TARE WEIGHT:
 29.2 g.

PROJECT NO.: 07005.00

GRID LOCATION	SAMPLE I.	DEPLOY D.	HR MIN	HR MIN	RETTRIV MO DA	ANALYSIS YR	MID-TIME HR	MID-TIME MIN (MIN)	CNT COUNTS	GROSS WT IN	RADON pCi/m ² s	\pm pCi/m ² s	LLD pCi/m ² s	COMMENTS:		
TB01	A01	8	17	9	27	7	13	7	14	7	1	5604	213.2	12.9	1.29	0.04
TB02	A02	8	19	9	28	7	13	7	14	7	1	8224	228.4	18.9	1.89	0.04
TB03	A03	8	20	9	29	7	13	7	14	10	4	1045	230.5	0.3	0.05	0.04
TB04	A04	8	21	9	30	7	13	7	14	10	4	1281	228.4	0.4	0.05	0.04
TB05	A05	8	25	9	32	7	13	7	14	15	4	1256	234.5	0.4	0.05	0.04
TB06	A06	8	28	9	31	7	13	7	14	16	5	1029	221.7	0.1	0.04	0.04
TB07	A07	8	30	9	33	7	13	7	14	22	5	1022	227.8	0.1	0.04	0.04
TB08	A08	8	31	9	34	7	13	7	14	20	1	1510	221.5	3.2	0.32	0.04
TB09	A09	8	33	9	35	7	13	7	14	24	1	1413	22.2	3.0	0.30	0.04
TB10	A10	8	35	9	36	7	13	7	14	24	1	2999	227.4	6.7	0.67	0.04
TB11	A11	8	36	9	36	7	13	7	14	25	1	2163	226.5	4.8	0.48	0.04
TB12	A12	8	43	9	38	7	13	7	14	27	3	1262	218.2	0.6	0.06	0.04
TB13	A13	8	45	9	38	7	13	7	14	30	1	7696	218.0	18.1	1.81	0.04
TB14	A14	8	46	9	39	7	13	7	14	32	4	1303	225.7	0.4	0.05	0.04
TB15	A15	8	48	9	39	7	13	7	14	35	2	1600	218.6	1.5	0.15	0.04
TB16	A16	8	49	9	40	7	13	7	14	35	1	7879	221.4	18.4	1.84	0.04
TB17	A17	8	51	9	41	7	13	7	14	38	1	26221	221.8	62.6	6.26	0.04
TB18	A18	8	52	9	42	7	13	7	14	40	5	1179	224.2	0.2	0.04	0.04
TB19	A19	8	53	9	43	7	13	7	14	45	3	1001	221.9	0.4	0.06	0.04
TB20	A20	9	0	9	44	7	13	7	14	45	3	1271	224.7	0.6	0.06	0.04
TB21	A21	9	2	9	45	7	13	7	14	48	2	1343	228.6	1.2	0.12	0.04
TB22	A22	9	3	9	45	7	13	7	14	50	4	1235	226.2	0.4	0.05	0.04
TB23	A23	9	8	9	47	7	13	7	14	53	2	1231	231.3	1.1	0.11	0.05
TB24	A24	9	9	48	7	13	7	14	53	1	3677	220.4	8.4	0.84	0.04	
TB25	A25	9	10	9	48	7	13	7	14	54	1	7626	230.8	18.1	1.81	0.05
TB26	A26	9	13	9	49	7	13	7	14	54	1	3878	221.5	8.9	0.89	0.04
TB27	A27	9	14	9	50	7	13	7	14	57	3	1197	229.8	0.6	0.06	0.05
TB28	A28	9	15	9	50	7	13	7	14	56	1	13961	233.8	33.2	3.32	0.04
TB29	A29	9	17	9	51	7	13	7	15	0	1	1513	229.7	3.3	0.33	0.05
TB30	A30	9	18	9	52	7	13	7	15	0	1	3070	225.3	7.0	0.70	0.04
TB31	A31	9	20	9	52	7	13	7	15	2	2	1272	229.6	1.2	0.12	0.05
TB32	A32	9	22	9	53	7	13	7	15	1	1	7628	227.1	18.0	1.80	0.04
TB33	A33	9	22	9	53	7	13	7	15	4	1	7254	227.8	17.3	1.73	0.05
TB34	A34	9	24	9	54	7	13	7	15	4	1	2134	229.5	4.8	0.48	0.04
TB35	A35	9	26	9	55	7	13	7	15	6	1	2616	229.6	6.0	0.60	0.05
TB36	A36	9	27	9	55	7	13	7	15	6	1	2021	232.1	4.5	0.45	0.04

CLIENT: COTTER CORP.

PROJECT NO.: 07005.00

PILE PRIMARY BATCH: A SURFACE: TAILINGS

AIR TEMP MIN: 68°F

RETRIEVED: 7 9 7

WEATHER: NO RAIN

Wt. Out: 180.0

g.

TARE WEIGHT:

29.2

WEATHER: CHARCOAL BKG:

155 cpm

g.

WT. OUT: 180.0

g.

TARE WEIGHT:

25.0

WEATHER: DATA ENTRY BY: DLC

RADON COUNTS

25.0

g.

CAL. DUE: 6/07/08

RADON COUNTS

25.0

g.

PROJECT: RADON FLUX MEASUREMENTS, CANON CITY, CO

PILE PRIMARY AREA: BEACH DEPLOYED: 7 9 7

RETRIEVED: 7 10 7

WEATHER: NO RAIN

Wt. Out: 180.0

g.

TARE WEIGHT:

25.0

WEATHER: CHARCOAL BKG:

155 cpm

g.

WT. OUT: 180.0

g.

TARE WEIGHT:

GRID	SAMPLE I.	LOCATION D.	DEPLOY HR	RETRIV MIN	ANALYSIS MO	MIN DA	HR YR	MID-TIME MIN (MIN)	CNT	GROSS WT COUNTS	RADON WT IN	± pCi/m ² s	LLD pCi/m ² s	COMMENTS :		
TB37	A37	9	28	9	55	7	13	7	15	1	3826	231.7	9.0	0.90	0.05	
TB38	A38	9	29	9	56	7	13	7	15	1	8531	226.7	20.3	2.03	0.04	
TB39	A39	9	31	9	57	7	13	7	15	2	1699	230.2	1.7	0.17	0.05	
TB40	A40	9	32	9	58	7	13	7	15	2	1006	229.6	0.8	0.08	0.04	
TB41	A41	9	33	9	58	7	13	7	15	4	1186	239.8	0.3	0.05	0.05	
TB42	A42	9	35	9	59	7	13	7	15	1	1548	234.2	3.4	0.34	0.05	
TB43	A43	9	37	10	0	7	13	7	15	1	4399	224.6	10.4	1.04	0.05	
TB44	A44	9	40	10	1	7	13	7	15	18	3	1028	224.9	0.5	0.06	0.05
TB45	A45	9	49	10	5	7	13	7	15	20	1	5189	233.5	12.4	1.24	0.05
TB46	A46	9	50	10	5	7	13	7	15	20	1	6629	225.5	15.8	1.58	0.05
TB47	A47	9	51	10	5	7	13	7	15	22	1	29390	229.1	72.0	7.20	0.05
TB48	A48	9	52	10	6	7	13	7	15	22	1	3320	230.6	7.7	0.77	0.05
TB49	A49	9	53	10	6	7	13	7	15	23	1	4231	232.9	10.0	1.00	0.05
TB50	A50	9	55	10	7	7	13	7	15	23	1	53827	228.9	131.1	13.11	0.05
TB51	A51	9	56	10	8	7	13	7	15	25	1	33485	226.3	82.2	8.22	0.05
TB52	A52	9	58	10	8	7	13	7	15	25	1	85699	238.8	209.2	20.92	0.05
TB53	A53	9	59	10	8	7	13	7	15	26	1	7759	226.0	18.8	1.88	0.05
TB54	A54	10	0	10	9	7	13	7	15	26	1	3866	228.0	9.1	0.91	0.05
TB55	A55	10	1	10	10	7	13	7	15	28	1	3604	234.5	8.5	0.85	0.05
TB56	A56	10	2	12	30	7	13	7	15	28	1	6275	231.0	13.5	1.35	0.04
TB57	A57	10	3	12	30	7	13	7	15	29	1	4258	225.0	9.2	0.92	0.04
TB58	A58	10	4	12	30	7	13	7	15	29	1	1826	232.0	3.7	0.37	0.04
TB59	A59	10	5	12	31	7	13	7	15	32	2	1003	231.9	0.8	0.08	0.04
TB60	A60	10	6	12	31	7	13	7	15	34	3	1040	227.0	0.4	0.05	0.04
TB61	A61	10	8	12	32	7	13	7	15	37	1	1042	229.5	2.0	0.20	0.04
TB62	A62	10	9	12	32	7	13	7	15	37	1	1009	227.7	1.9	0.19	0.04
TB63	A63	10	10	12	34	7	13	7	15	39	1	5885	225.9	12.8	1.28	0.04
TB64	A64	10	13	12	35	7	13	7	15	39	1	2735	226.5	5.7	0.57	0.04
TB65	A65	10	15	12	35	7	13	7	15	40	1	3564	232.6	7.7	0.77	0.04
TB66	A66	10	16	12	35	7	13	7	15	40	1	4632	231.7	10.0	1.00	0.04
TB67	A67	10	17	12	36	7	13	7	15	42	1	2838	222.7	6.0	0.60	0.04
TB68	A68	10	18	12	37	7	13	7	15	44	2	1124	227.6	0.9	0.09	0.04
TB69	A69	10	22	12	38	7	13	7	15	47	1	6860	226.5	15.1	1.51	0.04
TB70	A70	10	26	12	39	7	13	7	15	47	1	4600	230.1	9.9	0.99	0.04
TB71	A71	10	27	12	40	7	13	7	15	49	1	6357	214.7	14.0	1.40	0.04
TB72	A72	10	29	12	41	7	13	7	15	49	1	11319	222.5	25.0	2.50	0.04

CLIENT: COTTER CORP.

PROJECT:

RADON FLUX MEASUREMENTS, CANON CITY, CO

PILE: PRIMARY BATCH: A SURFACE: TAILINGS AIR TEMP MIN: 68°F
 AREA: BEACH DEPLOYED: 7 9 7 RETRIEVED: 7 10 7 CHARCOAL BKG: 155 cpm
 FIELD TECHNICIANS:P.Usnick, M.Currey, M.Villagraana COUNTED BY: DLC DATA ENTRY BY: DLC
 COUNTING SYSTEM I.D.: M01/D21, M02/D20 CAL. DUE: 6/07/08

WEATHER: NO RAIN WT. OUT: 180.0 g.
 TARE WEIGHT: 29.2 g.

PROJECT NO.: 07005.00

GRID	SAMPLE	DEPLOY	RETRIV	ANALYSIS	MID-TIME	CNT	GROSS	RADON	LLD			
LOCATION	I. D.	HR MIN	HR MIN	MO DA	YR	HR	MIN	WT IN	pCi/m ² s	pCi/m ² s	pCi/m ² s	COMMENTS :
TB73	A73	10 30	12 41	7 13	7	15	50	1	74491	222.8	168.0	0.04
TB74	A74	10 32	12 42	7 13	7	15	50	1	3426	227.8	7.3	0.73
TB75	A75	10 33	12 43	7 13	7	15	52	1	3634	231.1	7.9	0.79
TB76	A76	10 35	12 44	7 13	7	15	52	1	4658	233.0	10.1	1.01
TB77	A77	10 38	12 44	7 13	7	15	53	1	2735	234.1	5.8	0.58
TB78	A78	10 39	12 44	7 13	7	15	53	1	2512	227.5	5.3	0.53
TB79	A79	10 40	12 45	7 13	7	15	55	1	3743	225.7	8.1	0.81
TB80	A80	10 44	12 46	7 13	7	15	57	2	1212	229.3	1.0	0.10
TB81	A81	10 45	12 46	7 13	7	15	59	1	8917	224.3	19.9	1.99
TB82	A82	10 46	12 48	7 13	7	15	59	1	1027	224.2	2.0	0.20
TB83	A83	10 48	12 48	7 13	7	16	0	1	2329	228.9	4.9	0.49
TB84	A84	10 49	12 48	7 13	7	16	0	1	1678	226.8	3.4	0.34
TB85	A85	10 50	12 49	7 13	7	16	2	1	8374	223.4	18.7	1.87
TB86	A86	10 51	12 49	7 13	7	16	2	1	4739	228.2	10.3	1.03
TB87	A87	12 27	12 50	7 13	7	16	4	2	1571	224.6	1.5	0.15
TB88	A88	12 28	12 51	7 13	7	16	5	3	1249	222.5	0.6	0.06
TB89	A89	12 30	12 53	7 13	7	16	8	2	1422	223.3	1.3	0.13
TB90	A90	12 33	12 51	7 13	7	16	7	1	5421	224.3	12.6	1.26
TB91	A91	12 37	12 52	7 13	7	16	13	6	1112	226.1	0.1	0.04
TB92	A92	12 39	12 53	7 13	7	16	10	1	1652	224.7	3.6	0.36
TB93	A93	12 40	12 56	7 13	7	16	18	1	7045	219.8	16.7	1.67
TB94	A94	12 41	12 56	7 13	7	16	18	1	7809	223.1	18.4	1.84
TB95	A95	12 43	12 56	7 13	7	16	22	5	1009	223.6	0.1	0.04
TB96	A96	12 44	12 58	7 13	7	16	21	4	1053	225.7	0.3	0.05
TB97	A97	12 46	12 58	7 13	7	16	27	4	1208	222.5	0.4	0.05
TB98	A98	12 48	13 0	7 13	7	16	26	3	1249	219.7	0.6	0.06
TB99	A99	12 49	13 0	7 13	7	16	31	2	1824	228.8	1.8	0.18
TB100	A100	12 51	13 1	7 13	7	16	31	2	1252	222.3	1.1	0.11
TB106	A106	12 53	13 1	7 13	7	16	57	5	1081	224.2	0.1	0.04
TB107	A107	12 56	13 2	7 13	7	17	7	1	2437	220.8	5.6	0.56
TB108	A108	12 57	13 3	7 13	7	17	7	1	5292	231.2	12.5	1.25
TB109	A109	12 59	13 4	7 13	7	17	10	4	1109	221.8	0.3	0.05
TB110	A110	13 0	13 5	7 13	7	17	10	4	1199	224.0	0.4	0.05

AVERAGE RADON FLUX RATE FOR THE PRIMARY BEACHES REGION:

13.3 pCi/m²s

CLIENT: COTTER CORP.

PROJECT:

RADON FLUX MEASUREMENTS, CANON CITY, CO

PROJECT NO.: 07005.00

PILE: PRIMARY BATCH: A SURFACE: TAILINGS AIR TEMP MIN: 71°F
AREA: BEACH DEPLOYED: 7 9 7 RETRIEVED: 7 10 7 CHARCOAL BKG:
FIELD TECHNICIANS:P.Usnick, M.Currey, M.Villagrana COUNTED BY: DLC DATA ENTRY BY: DLC
COUNTING SYSTEM I.D.: M01/D21, M02/D20 CAL. DUE: 6/07/08

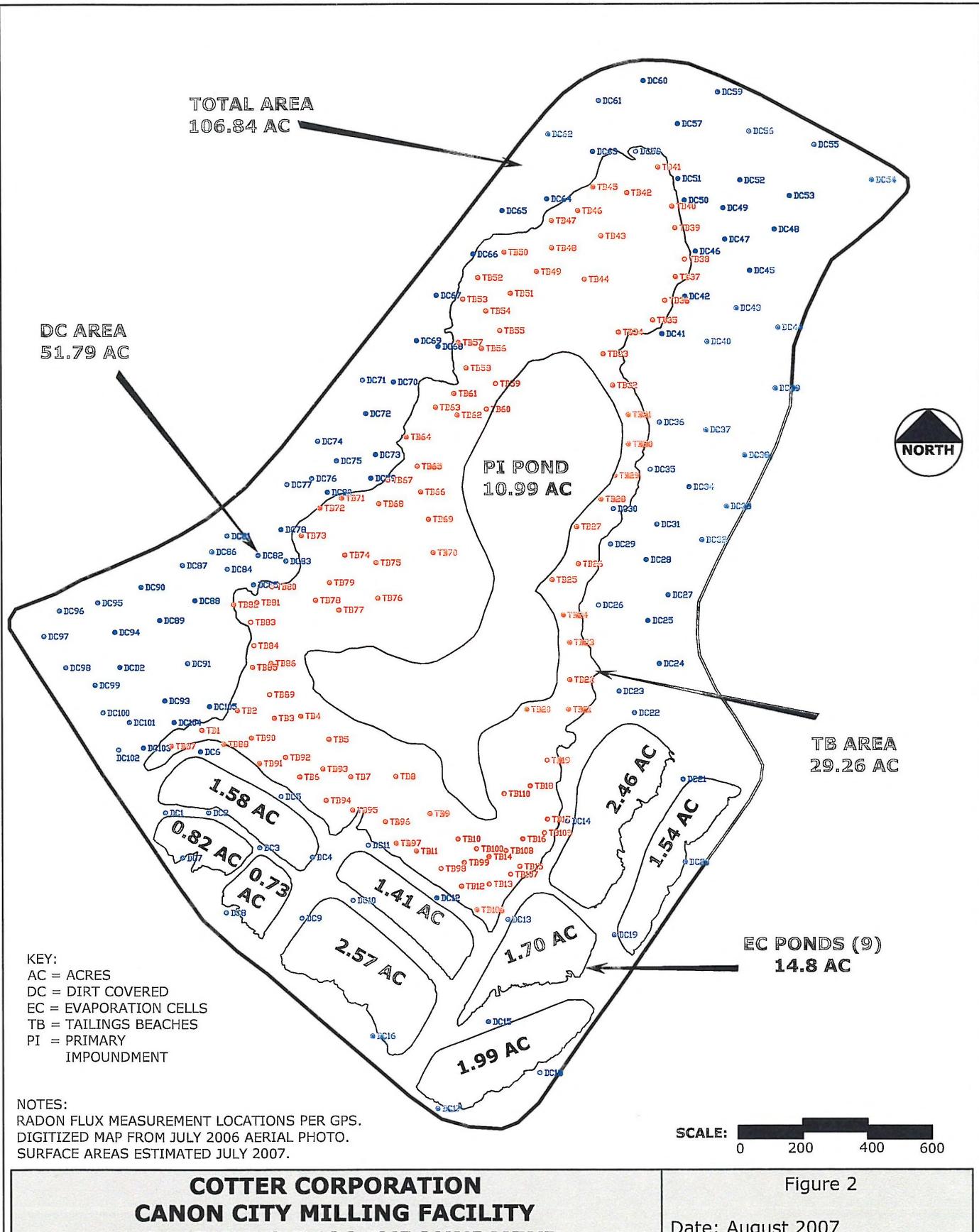
BLANK CANISTER ANALYSIS:

GRID	SAMPLE	DEPLOY	RETRIV	ANALYSIS	MID-TIME	CNT	GROSS	GROSS	RADON	±	LLD	COMMENTS:
LOCATION	I. D.	HR	MIN	HR	MIN	MO	DA	YR	HR	MIN	(MIN)	COUNTS
A BLANK 1	A101	7	56	13	50	7	13	7	16	38	10	1961
A BLANK 2	A102	7	56	13	50	7	13	7	16	38	10	2055
A BLANK 3	A103	7	56	13	50	7	13	7	16	49	10	2161
A BLANK 4	A104	7	56	13	50	7	13	7	16	49	10	1834
A BLANK 4	A104	7	56	13	50	7	13	7	17	0	10	2019

AVERAGE BLANK CANISTER ANALYSIS FOR THE PRIMARY BEACHES REGION: 0.09 pCi/m²s

Appendix D

Map (Figure 2)



COTTER CORPORATION
CANON CITY MILLING FACILITY
PRIMARY TAILINGS IMPOUNDMENT
RADON FLUX TEST CANISTER LOCATIONS (2007)

Figure 2

Date: August 2007
 Drawn by: RMD
 File: LowSpotRadon 2007Sketch.dwg